

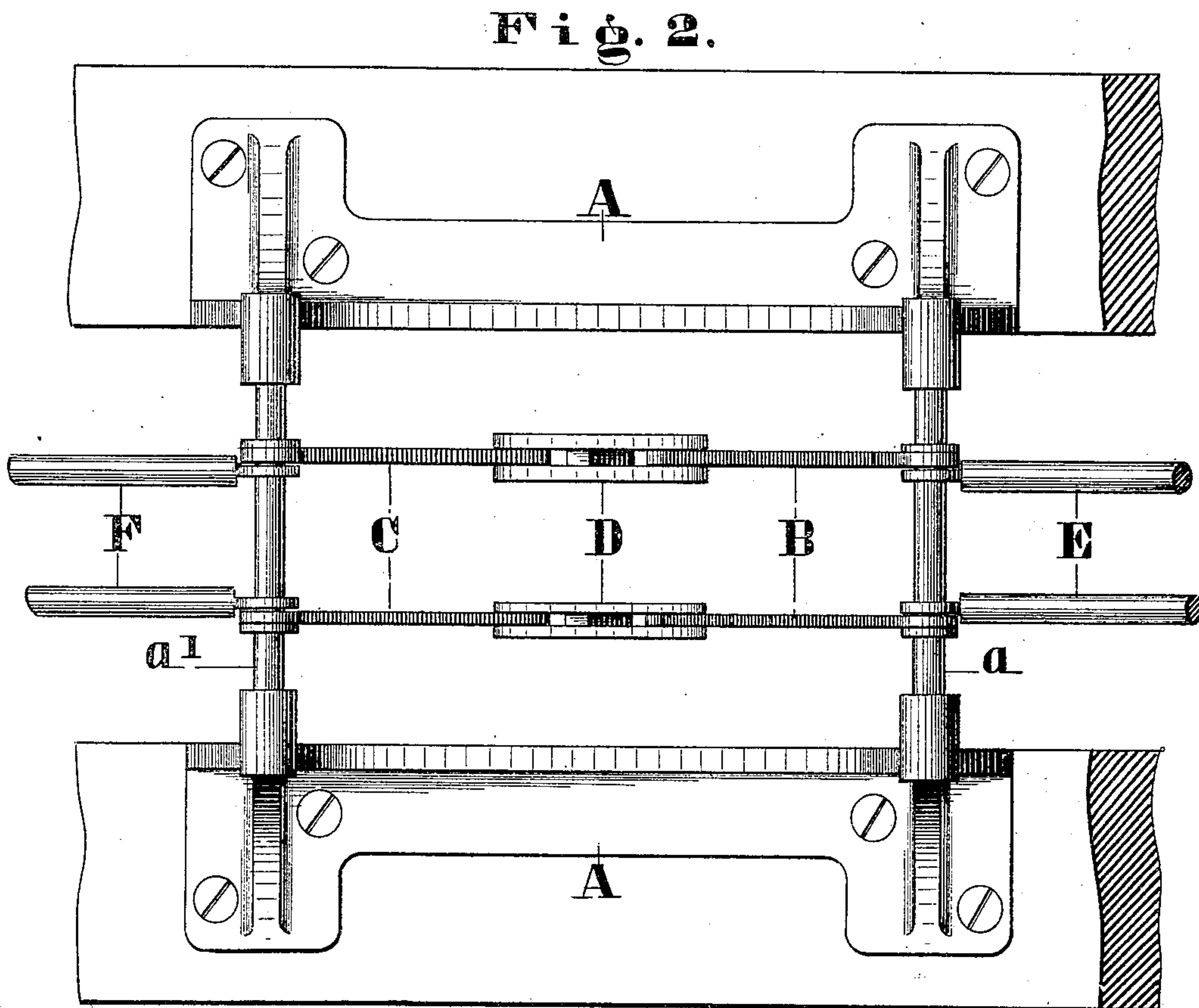
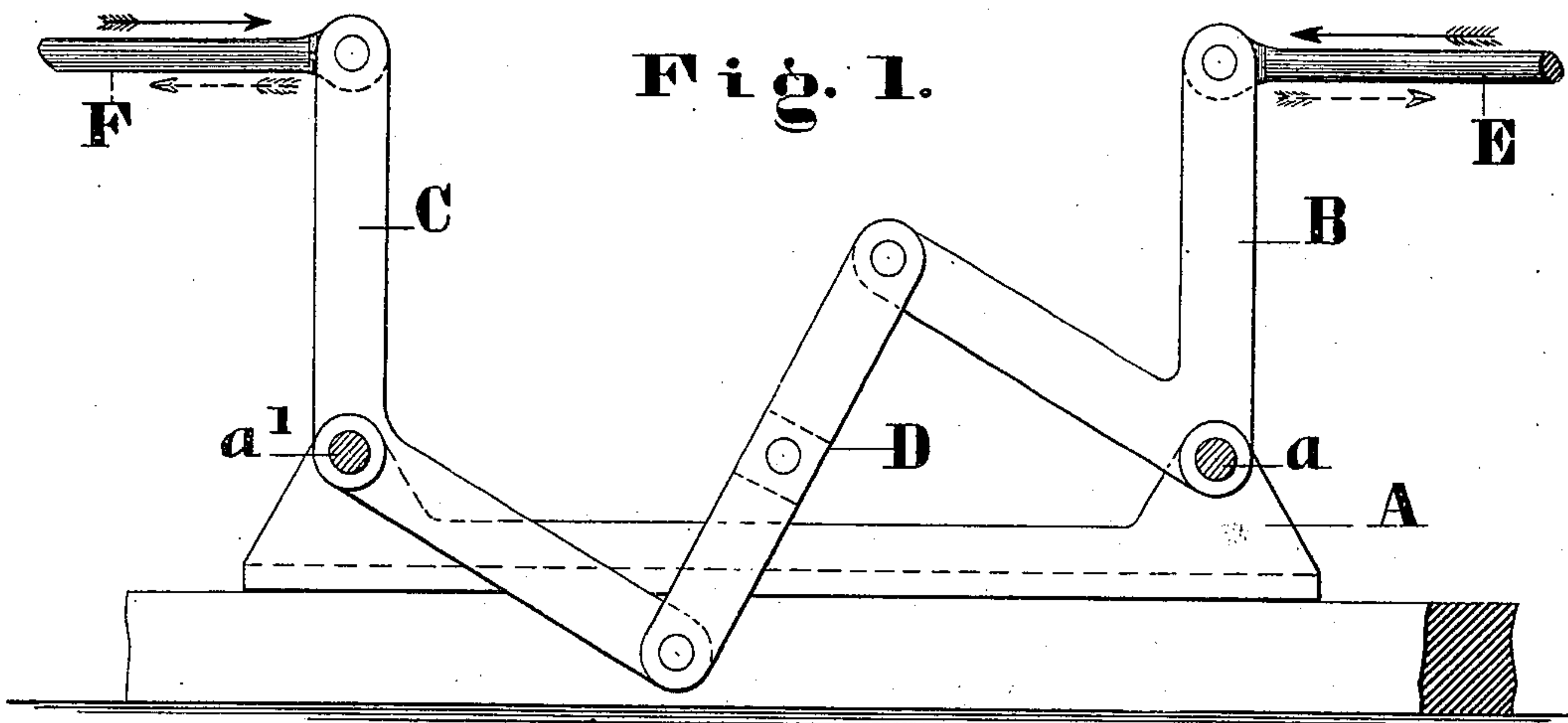
(No Model.)

H. F. COX.

COMPENSATOR FOR PIPE AND ROD CONNECTIONS.

No. 246,662.

Patented Sept. 6, 1881.



WITNESSES:
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UNITED STATES PATENT OFFICE.

HENRY F. COX, OF ALTOONA, PENNSYLVANIA.

COMPENSATOR FOR PIPE AND ROD CONNECTIONS.

SPECIFICATION forming part of Letters Patent No. 246,662, dated September 6, 1881.

Application filed July 7, 1881. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. COX, of Altoona, county of Blair, and State of Pennsylvania, have invented an Improved Compensator for Pipe and Rod Connections; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which—

Figure 1 represents a side view, and Fig. 2 a top view.

This invention has for its object the connection of pipe and rod sections in such manner that the expansion and contraction of the same under changes of temperature may be properly compensated for; and it consists, mainly, in a special arrangement of parts, hereinafter fully described, by means of which the desired result is obtained without the projection of any part below a horizontal base-line.

To enable others skilled in the art to make my invention, I will proceed to describe fully the construction of the same.

A A represent base-pieces, of proper form, which are strongly fastened to foundation-beams or other suitable means of support.

a a' represent rods or shafts, of proper length, according to the number of compensating devices to be held thereby, which are securely held at their ends in proper openings in the base-pieces, as shown.

B represents one of a series of bell-crank levers, each of which is provided with a proper opening, by means of which it is secured to the rod *a* at one end of the base-pieces, as shown.

C represents one of a series of bell-crank levers, each of which is provided with a proper opening, by means of which it is secured to the rod *a'* at the opposite end of the base-pieces.

D represents a connecting-rod, by means of which the adjacent ends of the levers B and C are united.

E represents the rod or pipe section extending away from the vertical arm of the lever B, and F a pipe-section extending away from the vertical arm of the lever C. The lever B, it will be observed, by means of the connecting-arm D, communicates movement to the end of the lower arm of lever C without making any change in the general direction. The movement of the end of the lower arm of the lever C, on the contrary, gives movement to the end of the upper arm, located on the opposite side

of the pivot, in a directly-opposite direction. By means of this arrangement it follows that when the vertical arm of either one of the levers B and C is actuated the other receives a simultaneous and equal movement in the opposite direction. In consequence of this capacity for equal and simultaneous movement in opposite directions perfect compensation will be made for the expansion and contraction of the pipe-section under changes of temperature. The arrangement of these parts is such, it will be observed, that no part projects below the horizontal base-line of the supporting-beam.

By varying the length of the lever-arms relatively to each other provision may be made for the expansion and contraction of pipe-sections of different lengths in the manner well understood.

Some of the advantages of the described construction are as follows: By means of the described construction the necessary change of direction is obtained without the extension of any part to a material distance in either a horizontal or vertical plane. By means of the base-pieces and rods a series of compensators may be held in such manner that each one may be reached and adjusted independently of the others, if desired.

This invention has been practically applied in pipe or rod lengths connecting switch or signal-levers with their switches or signals, the purpose being to insure precisely the same resultant movement of the switch or signal under every condition of temperature.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The compensating device described, having the elements B C D, in combination with pipe or rod lengths E F, as described.

2. In combination with the base-pieces A A, the rods *a a'* and a series of crank-levers, B C, and connecting-rods D, as described.

3. A compensator, substantially as described, having a connecting-rod and two bell-cranks, combined with pipe or rod lengths, substantially as described.

This specification signed and witnessed this 28th day of June, 1881.

HENRY F. COX.

Witnesses:

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THOS. P. FOSTER.